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# ECONOMIC RELATIONSHIPS IN THE PROVIDENCE, RHODE ISLAND, METROPOLITAN AREA

Caleb A. Smith  
Dale L. Moody

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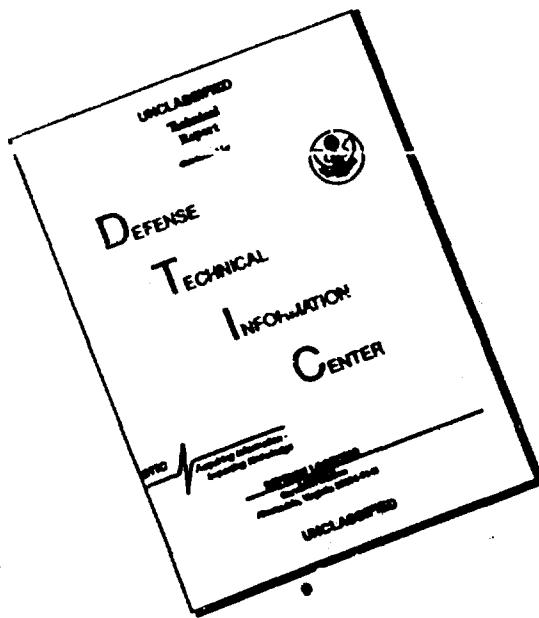


INSTITUTE FOR DEFENSE ANALYSES  
PROGRAM ANALYSIS DIVISION

400 Army-Navy Drive, Arlington, Virginia 22202

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## SUMMARY

This Research Paper presents the 1963 interindustry transactions data and coefficients for the Providence, Rhode Island, Standard Metropolitan Statistical Area in the same form as the 1958 national interindustry table prepared by the Office of Business Economics, U.S. Department of Commerce. The data are presented in five large (removable) tables: Interindustry Transactions, Direct Requirements per Dollar of Gross Output, Total Requirements (Direct and Indirect) per Dollar of Delivery to Final Demand, Imports by Producing Sectors, and Direct Import Requirements per Dollar of Gross Output.

The text of the paper describes the tables, shows how they are used, and suggests feasible applications for these data both in Civil Defense planning and industrial economic planning.

## FOREWORD

The research effort underlying the work described in this paper was performed by Brown University under contract to the Institute for Defense Analyses. This work was performed as part of Task Order 4131A, Evaluation of a Crisis-Oriented Civil Defense System under Contract No. OCD-PS-66-113 with the Office of Civil Defense, Department of the Army.

The information presented here is based on empirical data supplied by business concerns and governmental agencies located in the Providence Standard Metropolitan Statistical Area. Dr. Caleb A. Smith of the Economics Department at Brown University supervised the gathering of the data and the development of Interindustry Transaction and Input Tables. IDA supervision and guidance for the study were provided by Mr. William C. Truppner and Dr. Philip A. Newman of the Civil Defense Economics Project. The computer processing and programming required for developing the tables was directed by Mr. Dale L. Moody of IDA. The editing of this report was by Mr. Leonard G. Bates.

Dr. Abner Sachs, Leader  
Civil Defense Project

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## TABLES

**INPUT-OUTPUT MATRICES**  
(Contained in Back-cover Pocket)

- I      Interindustry Transactions
  - II     Direct Requirements Per Dollar of Gross Output
  - III    Total Requirements (Direct and Indirect) Per Dollar of Delivery to Final Demand
  - IV    Imports by Producing Sectors
  - V    Direct Import Requirements Per Dollar of Gross Output

## FIGURE

- 1 Providence-Pawtucket-Warwick Standard Metropolitan  
Statistical Area (Rhode Island - Massachusetts)  
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## SUMMARY

This Research Paper presents the 1963 interindustry transactions data and coefficients for the Providence, Rhode Island, Standard Metropolitan Statistical Area in the same form as the 1958 national interindustry table prepared by the Office of Business Economics, U.S. Department of Commerce. The data are presented in five large (removable) tables: Interindustry Transactions, Direct Requirements per Dollar of Gross Output, Total Requirements (Direct and Indirect) per Dollar of Delivery to Final Demand, Imports by Producing Sectors, and Direct Import Requirements per Dollar of Gross Output.

The text of the paper describes the tables, shows how they are used, and suggests feasible applications for these data both in Civil Defense planning and industrial economic planning.

# I

## INTRODUCTION

The interindustry data for the Providence Rhode Island area are presented here as an aid to both those performing economic research on that specific area and those interested in local input-output analysis in general. The data are presented in five matrices (Tables I through V) inserted in the envelope pocket of this paper. These tables of interindustry transactions and coefficients follow the same classification and definition of sectors as the 1958 national interindustry table prepared by the Office of Business Economics, U.S. Department of Commerce.<sup>1</sup>

The tables show in detail what each sector purchases from each other sector within the Providence area as well as from external sources, both domestic and foreign. Similarly, the tables show the distribution of each sector's output to household consumption, business investment, and local and federal government agencies. Exports by each sector to external outlets in the United States and foreign countries are also shown.

The data were developed for an IDA study concerned with the evaluation of alternative civil defense systems. One of these systems, Movement to Shelter (MTS)<sup>2</sup>, proposes to move large segments

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1. "The Transactions Table of the 1958 Input-Output and Revised Direct and Total Requirements Data," Survey of Current Business; U.S. Department of Commerce, Office of Business Economics (Washington, D.C.: September 1965). For more detailed sector definitions see Industry Description Appendix to Input-Output Study - 1958; U.S. Department of Commerce, Office of Business Economics (Washington, D.C.: November 1964).

2. Jack Faucett and Grace J. Kelleher, Economic Relationships in the New Orleans Metropolitan Area, Research Paper P-347; G. Kelleher, The Live Saving Potential of Movement-to-Shelter: A Case Study of the New Orleans Metropolitan Area, Study S-302; G. Kelleher and Dale Moody, Economic Impact of Activating a Movement-to-Shelter System: A Case Study of the New Orleans Metropolitan Area, IDA S-303; All are publications of IDA, Program Analysis Division, (Arlington, Va. 1967-68).

of the population from urban areas to reception centers located in peripheral areas of low target interest. With the local input-output table available, it becomes possible to evaluate the effects of interrupting or decreasing production in various sectors of the local economy. This, in turn, provides data to determine which workers to evacuate and in which order.

Another civil defense application of these data would be in post-attack recovery studies where damage assessment evaluation is required to determine the effect of losses in capacity on the local and national economies.

The local input-output data should provide an excellent tool for the study of economic development problems and economic projections in urban development planning. They are of value also in identifying and projecting markets for new products for sale to industrial users and for development of capacity for sales to the local markets by local producers. The local data may be used to determine the degree of self-sufficiency in the area, the dependence of the area on locally produced or imported raw materials, and the importance of transportation links with other parts of the country.

The tables are described in detail in Section II. Section III discusses the procedures used in developing the Providence data.

## II

### DESCRIPTION OF THE PROVIDENCE SMSA 1963 INPUT-OUTPUT TABLES

#### A. TABLE I - INTERINDUSTRY TRANSACTIONS

The input-output transactions or flow table for the Providence SMSA follows the same definitions and classifications of sectors as the 1958 national interindustry table prepared by the Office of Business Economics.<sup>1</sup> It shows across the row, how much of a given sector's output was used by each of the industries of the economy to make its own products and how much went to final demand. The columns show the dollar value of each sector's consumption (input) of the raw materials, semi-finished products, and services used from the various local industries, imports, and its value added (the sum of capital consumption allowances, profits and proprietors' incomes, compensation of employees, etc.). The row total (output) for each sector is equal to its column total (input). The gross area product or unduplicated output is the sum of the value-added row in the table.

The Providence table is consistent with the national table with the three following exceptions:

- (1) External factors income flows (shown in the "rest-of world" account in the national table) have not been derived.
- (2) Measures-of-inventory and inventory revaluations were not developed.
- (3) In the national table, competitive imports are shown as transfers to corresponding primary (producing) sectors, whereas in the Providence table all imports are shown as direct inputs to the final consuming sectors.

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1. Survey of Current Business, op cit.

#### B. TABLE II - DIRECT REQUIREMENTS PER DOLLAR OF GROSS OUTPUT

This table shows the interdependence among the various producing industries by characterizing a specialized economy which fabricates semi-processed goods and various business services for combination into still further advanced stages of fabrication. Each column shows the inputs that the consuming sector named at the top of that column requires from each of the industries named at the beginning of the rows to produce one dollar of its output. For example, in order for Sector 1, Livestock and Livestock Products, to produce one dollar of output, it requires .155 of a cent of its own production; 34 cents from Sector 2, Other Agricultural Products; 4.3 cents from Sector 69, Wholesale and Retail Trade; 27 cents from Sector 80, Imports, etc.

This table contains the information necessary to determine what production would be necessary from each and every industry for any one given industry to produce its output for distribution to final demand or to other industries. For example, if Sector 14, Food and Kindred Products, produces \$1 million of net output for sale to the final consumer it would have to produce a total output of \$1,011,481 ( $\$1,000,000 / 1.0 - .011351$ ). Sector 1 would be required to produce \$48,166 ( $\$1,011,481 \times .047619$ ); Sector 68, Electric, Gas, Water and Sanitary Services, would have to produce inputs of \$5,006 ( $\$1,011,481 \times .004949$ ); \$383,514 ( $\$1,011,481 \times .379161$ ) of inputs would have to be imports; and so on for each input to the Food and Kindred Products Sector.

Each sector which received a requirement for its products from Sector 14 places, in turn, demands on other sectors for its inputs. For example, in order for Sector 68 to produce \$5,006 of net output it imposes a demand of \$27 ( $\$5,006 \times .005458$ ) on itself, which requires a total production of \$5,034 ( $\$5,006 / 1.0 - .005458$ ). The level of output of Sector 68 now requires \$14 ( $\$5,034 \times .002674$ ) from Sector 70, Finance and Insurance, and so on through the matrix.

These calculations can be repeated until the total amount of output required from each sector to produce a net output of \$1 million of Food and Kindred Products for the final consumer is

derived. However, these totals can be obtained more directly by the use of the next table in which the relationships in Table II have been completely traced and summarized.

C. TABLE III - TOTAL REQUIREMENTS (DIRECT AND INDIRECT) PER DOLLAR OF DELIVERY TO FINAL DEMAND

The columns of this table show the direct and indirect dollar output that is required from the producing sector named at the beginning of each row for each dollar of deliveries to final demand by the consuming sector.<sup>2</sup>

Using the same example of producing \$1 million of Food and Kindred Products, it can be seen that it is no longer necessary to trace the demands of output from sector to sector. Instead it is possible to calculate quite simply the total output required to provide final demand with an additional \$1 million of Food and Kindred Products. The column for Sector 14 shows that almost \$1,013,000 ( $\$1,000,000 \times 1.012529$ ) is required in total from Sector 14; over \$48,000 ( $\$1,000,000 \times .048291$ ) from Sector 1; a little over \$6,000 ( $\$1,000,000 \times .006124$ ) from Sector 68; and so on for every sector affected by Sector 14.

D. TABLE IV - IMPORTS BY PRODUCING SECTORS

The Survey of business firms in Providence provided specific information on the local or non-local origin of each input to each sector. This made it possible to allocate the purchases of inputs from sources outside the local economy directly to each of the local sectors, the total being the same as row 80 (Imports) of Table I. These imports are treated here as fixed inputs proportionate to the production of the final products of each sector. Each column

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2. See Hollis B. Chenery and Paul G. Clark, Interindustry Economics (New York: 1962, John Wiley & Sons, Inc.) for mathematical procedures for use in converting direct requirements to total requirements.

of Table IV shows the imports that a (local) consuming sector requires from the producing sectors (located outside the economy) named at the beginning of a row.

#### E. TABLE V - DIRECT IMPORT REQUIREMENTS PER DOLLAR OF GROSS OUTPUT

The direct import requirements relate the imported inputs of each consuming sector to its total output. Each column of the table shows the inputs that the local sector named at the top of that column required from each of the external sectors named at the beginning of the rows to produce a dollar of its output. The difference between Tables II and V is that Table II shows the producing sector of only locally produced inputs whereas Table V shows the producing sectors of only the inputs that are imported.

### III

#### PROCEDURES USED IN DEVELOPING THE INPUT-OUTPUT TABLES<sup>1</sup>

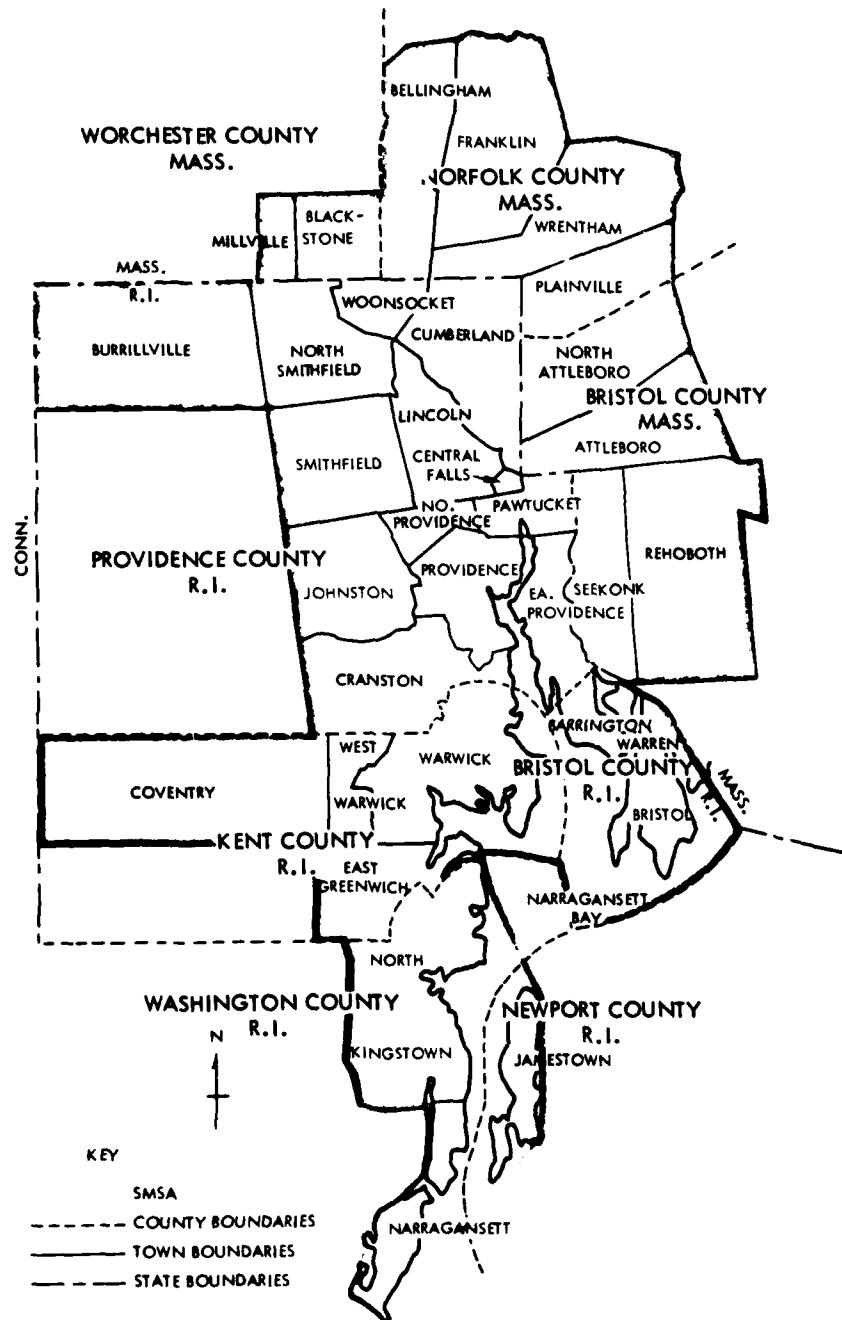
As mentioned earlier the table of interindustry transactions for the Providence area is with minor exceptions conceptually and statistically consistent with the national interindustry table of the Office of Business Economics and a similar IDA Input-Output Study of the New Orleans SMSA.<sup>2</sup> Consistency between the local and national tables makes it possible to relate the component measures of gross area product with those of G.N.P. and, generally, to study the relation of the local economies to the national economy. This section discusses some of the methods used in developing the Providence table.

The SMSA was selected as the area boundary for Providence as in other civil defense studies. However the geographical composition of the Providence SMSA caused a number of problems not encountered in similar local studies. The boundaries of New England SMSA's do not follow county lines (Figure 1). For example, one town in Providence County, Rhode Island, one in Newport County, R. I.,

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1. The detailed analyses and complete procedures for developing the Input-Output analysis of the Providence SMSA has been published in a separate report for those students and researchers in the field who may be interested in the exact methods used to develop such a matrix: Dr. Caleb A. Smith, Methods Used in Developing Input-Output Tables for the Providence Standard Metropolitan Statistical Area, 1963, prepared by the Brown University Department of Economics for The Institute for Defense Analyses (IDA Internal Note N-542 R). This publication may be obtained on application to the Department of the Army, Office of Civil Defense, Systems Evaluation Division.

2. Survey of Current Business, op. cit., Faucett and Kelleher, op. cit.



2-27-68-1

FIGURE 1. Providence-Pawtucket-Warwick Standard Metropolitan Statistical Area  
(Rhode Island - Massachusetts) Showing County Boundaries

three towns in Bristol County, Massachusetts, four in Norfolk County, Massachusetts and two in Worcester County, Mass. are included in the SMSA. Obviously, this division among counties and between states posed considerable difficulty in assembling data. In addition, much of the information available on the national and state levels is not available on the local level. Eighty-five percent of the population of Rhode Island is contained in the Providence SMSA. Approximately ten percent of the SMSA population resides in Massachusetts towns.

#### A. MANUFACTURING

Questionnaires developed jointly with Jack Faucett Associates were sent to manufacturing establishments in the Providence SMSA. Information obtained from these questionnaires, which included inputs by sector and the location inside or outside the SMSA of the supplier, was the basis of the study.<sup>3</sup>

##### 1. Control Totals

In order to develop input coefficients that would be representative of the product mix of this area, separate output control totals were developed for each four-digit SIC industry in the Providence SMSA. Data on numbers of plants by size groups was compared with figures of the average shipments of all plants in each size group in the United States. The resulting figures for each four-digit industry were used to determine preliminary shipment estimates. These estimates were then compared to total shipment figures for three- and two-digit industries from a special compilation obtained from the Bureau of the Census. Adjusted totals

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3. Samples of the questionnaires are presented in the Appendix to the Smith research, IDA Internal Note N-542(R).

were compared with the data developed for the New Orleans study. Obviously, the validity of these output estimates depends on how well a given four-digit industry in the Providence Area is represented by the national average shipments of that employment size group.

## 2. Input Coefficients

Where a sufficient number of responses to the information questionnaires were obtained, coefficients for material inputs were determined directly. For all other SIC four-digit industries, these coefficients were obtained from an input-output study of the Philadelphia area.<sup>4</sup> It is believed that these coefficients were more similar to those of the Providence area than the national coefficients developed from OBE worksheets. When the Philadelphia study showed unallocated material inputs for the SICs used in any sector of more than 0.50 percent of output of the sector (and often when the percentage was less than this) the unallocated inputs were allocated, after a study of the OBE table, on the basis of our knowledge of the character of the enterprises in the SMSA. Material inputs for four-digit SICs comprising only 2.05 percent of the estimated output were obtained by inflating data for a broader group, usually all the rest of the sector, while 0.70 percent were obtained from OBE coefficients which pertained to an entire sector.

Only one sector (Sector 65 - Transportation) developed data that were not satisfactory because many establishments showed no inbound transportation costs, and also because questionnaires returned from the trucking industry indicated that only a small portion of inbound transportation charges were paid by the local establishments. However, inputs from questionnaires sent outside the SMSA did include

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4. Walter Isard, Thomas W. Langford, Jr., and Eliahu Romanoff, Philadelphia Region Input-Output Study (Unpublished Study).

transportation and warehouse charges. Therefore, to bring these charges down to producer's cost (the conventional way of showing inputs in an input-output tabl ) coefficients were calculated from the margins obtained from the Polenske Report.<sup>5</sup>

Inputs for Sector 69 (Wholesale and Retail Trade) could not be obtained from the questionnaires as this would require knowledge by the receiver of the supplier's cost of doing business. The questionnaire did, however, ask whether inputs were obtained from the producer or from wholesalers or retailers located in the Providence SMSA. Almost all purchases by wholesalers were from producers outside the SMSA; all purchases by businesses from wholesalers or retailers were assigned to producers outside the SMSA after deflating for trade margins.

#### B. NONMANUFACTURING SECTORS

The output of each nonmanufacturing sector was developed separately from census and other published information. The outputs then were compared for consistency to the national totals and the Faucett New Orleans study.

In developing local input coefficients, questionnaires were mailed to firms in the wholesale trade, construction, and transportation industries. However, the poor quality of most replies made it necessary to rely on national figures to estimate inputs for these sectors. Special studies were made of several large utilities in the SMSA and these data were used to supplement national coefficients in estimating inputs to these industries.

#### C. SECONDARY PRODUCTS

Many plants produce more than one product and in many cases these products are not all grouped in the same sector. The plant

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5. K. R. Polenske, Study of Transportation Requirements Using National and Multiregional Input-Output Techniques, Department of Commerce Clearinghouse (Washington, D.C.: April 1967).

is classified in the sector of its principal products and secondary products are usually distributed in the input-output tables with the output of the sector which is producing these products as primary products.

In Providence, transfers were made to Sector 68 (Electric, Gas, Water and Sanitary Services) from Sector 79 (State and Local Government Enterprises). Three transfers were made to Sector 73 (Business Services) from Sector 26 (Printing and Publishing), Sector 66 (Communications), and Sector 67 (Radio and T.V. Broadcasting). All output in Sector 81 (Business Travel, Entertainment and Gifts) and Sector 82 (Office Supplies) are transfers from other sectors.

#### D. FINAL DEMAND

##### 1. Estimated Personal Consumption Expenditures

Estimation of Personal Consumption Expenditures was done in two steps. First, disposable personal income was estimated by proportioning the Rhode Island personal income by a factor equal to the Providence SMSA proportion of the state population. The 1965 SMSA population was determined by adding the Massachusetts portions modified by the Rhode Island growth factor to the figures from a Special Census of Rhode Island. The naval population on board ships was eliminated from these figures.

Then the SMSA estimated Personal Consumption Expenditure was obtained by multiplying this derived disposable personal income by the ratio of the United States Personal Consumption Income to disposable personal income. Minor adjustments were made to correlate this figure with others estimated by other sources.

##### 2. Government Purchases

Expenditures by the governments of the states of Rhode Island and Massachusetts in the Providence SMSA were not available. State expenditures tend to be concentrated in the capital city, especially in a small state. The population of the SMSA is 95.53 percent of

that of the state of Rhode Island. It seemed reasonable to estimate expenditures in the SMSA by the two state governments at 98 percent of the entire general expenditure by Rhode Island. Total local government expenditures were allocated on a per capita basis for the four cities making up the SMSA (Providence, Pawtucket, Cranston and Warwick).

Expenditures by the Federal Government were estimated by using information on numbers of persons employed and median earnings of these government employees from the 1960 census.

Only new construction expenditures were reported by the State governments. For local expenditures, the state ratio of total capital outlay was used. Federal purchases of new construction were estimated by using the ratio of these purchases to state and local purchases in the 1958 national input-output table.

### 3. Gross Private Fixed Capital Formation

The Census of Manufactures reports new capital expenditures by two- and three-digit SIC codes for the Providence SMSA. Capital expenditures for SIC major industry groups 21, 24, 25, 29, and 37, which amounted to less than four percent of the amount for all manufacturing industries, is not specified between groups because of disclosure restrictions. These industry groups are relatively unimportant in the SMSA, estimated shipments for them amounting to 3.7 percent of the shipments of all manufacturers in the SMSA. Capital expenditures for each of these groups were estimated in proportion to their estimated shipments. For the manufacturing sector, the reported amount by the Bureau of Labor Statistics of 22 percent of the total was used as an adjustment to allocate the dollar expenditures reported by the Census of Manufactures to account for capital investment in Sectors 13 to 64.

For the nonmanufacturing sectors, estimates were developed by applying the ratio of output to capital flow shown for the sector for 1958 to the output estimated for each sector for 1963 in the Providence SMSA.

**Table I. INTERINDUSTRY TRANSACTIONS, 1963, PROVIDENCE SMSA  
(In Thousands of Dollars at Producers' Prices)**

The sales, shipments, and gross exports of goods and services from each primary industry - imports + total are shown as a percentage of the total for 1980.



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**Table II. DIRECT REQUIREMENTS PER DOLLAR OF GROSS OUTPUT  
PROVIDENCE SMSA, 1963  
(Producers' Prices)**

10A-F-198-E: *Sphaerodiscus* sp. in the Palafoxense Shrubland, Metropolitan Area

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Table III. TOTAL REQUIREMENTS (DIRECT AND INDIRECT) PER DOLLAR OF DELIVERY TO FINAL DEMAND  
 PROVIDENCE SMSA, 1963  
 (Producers' Prices)

DAE-41-202-25-25 (1958) in the Pines series, Rhode Island. Material for Amer.

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**Table IV. IMPORTS BY PRODUCING SECTORS  
PROVIDENCE SMSA, 1963**  
(In Thousands of Dollars at Producers' Prices)

PRODUCING SECTOR	CONSUMING SECTOR												Imports from Producers Sector
	Automobiles & Parts	Automobile Parts	Other Motor Vehicles	Industry & Business Equip.	Industry & Business Services	Transportation & Equipment	Food, Beverage & Tobacco	Textiles	Chemical Manufacturing	Nonmetallic Minerals	Machinery, Equipment & Supplies	Manufacturing Services	
1. Livestock and Livestock Products	368	---	---	18	---	---	---	---	---	---	---	---	121
2. Other Agricultural Products	221	546	---	---	---	---	---	---	---	---	---	---	121
3. Forestry and Fishtery Products	221	---	---	---	---	---	---	---	---	---	---	---	121
4. Agriculture, Forestry and Fishing and Miscellaneous Farming	221	221	---	---	---	---	---	---	---	---	---	---	121
5. Nonmetallic Minerals	221	221	---	---	---	---	---	---	---	---	---	---	121
6. Coal Mining	---	---	---	---	---	---	---	---	---	---	---	---	121
7. Crude Petroleum and Natural Gas	---	---	---	---	---	---	---	---	---	---	---	---	121
8. Stone and Clay Minerals and耐火砖 Cement and Refractory Materials Mining	---	---	---	---	---	---	---	---	---	---	---	---	121
9. New Dams	---	---	---	---	---	---	---	---	---	---	---	---	121
10. Maintenance and Repair of Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
11. Indian and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
12. Food and Kindred Products	264	264	---	---	---	---	---	---	---	---	---	---	121
13. Tobacco Manufactures	---	---	---	---	---	---	---	---	---	---	---	---	121
14. Broad and Narrow Fabrics, Yarn and Thread Mills	---	---	---	---	---	---	---	---	---	---	---	---	121
15. Miscellaneous Textile Goods and Floor Coverings	---	---	---	---	---	---	---	---	---	---	---	---	121
16. Apparel	---	---	---	---	---	---	---	---	---	---	---	---	121
17. Miscellaneous Fabricated Dressing Products	---	---	---	---	---	---	---	---	---	---	---	---	121
18. Timber and Wood Products, Except Containers	---	---	---	---	---	---	---	---	---	---	---	---	121
19. Paper, Pulp and Boards	---	---	---	---	---	---	---	---	---	---	---	---	121
20. Household Furniture	---	---	---	---	---	---	---	---	---	---	---	---	121
21. Other Furniture and Fixtures	---	---	---	---	---	---	---	---	---	---	---	---	121
22. Leather and Allied Products, Except Containers	---	---	---	---	---	---	---	---	---	---	---	---	121
23. Paper and Allied Products, Except Containers	---	---	---	---	---	---	---	---	---	---	---	---	121
24. Printed Paper and Board	---	---	---	---	---	---	---	---	---	---	---	---	121
25. Printing and Publishing	---	---	---	---	---	---	---	---	---	---	---	---	121
26. Chemicals and Related Chemical Products	64	325	---	---	---	---	---	---	---	---	---	---	121
27. Plastics and Synthetic Materials	---	---	---	---	---	---	---	---	---	---	---	---	121
28. Drugs, Cleaning and Toilet Preparations	---	---	---	---	---	---	---	---	---	---	---	---	121
29. Paints and Allied Products	---	---	---	---	---	---	---	---	---	---	---	---	121
30. Petroleum Refining and Related Industries	74	112	212	---	---	---	---	---	---	---	---	---	121
31. Rubber and Miscellaneous Plastics Products	---	---	---	---	---	---	---	---	---	---	---	---	121
32. Leather Tanning and Industrial Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
33. Footwear and Other Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
34. Glass and Clay Products	---	---	---	---	---	---	---	---	---	---	---	---	121
35. Primary Metal Manufacturing	---	---	---	---	---	---	---	---	---	---	---	---	121
36. Primary Nonferrous Metals Manufacturing	---	---	---	---	---	---	---	---	---	---	---	---	121
37. Metal Fabricating	---	---	---	---	---	---	---	---	---	---	---	---	121
38. Metallurgy, Electrometallurgy, Metal Products	---	---	---	---	---	---	---	---	---	---	---	---	121
39. Lumber, Wood and Wood Products, Products of Sawmills and Planing Mills	---	---	---	---	---	---	---	---	---	---	---	---	121
40. Materials Handling Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
41. Metalworking Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
42. Special Industry Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
43. General Industrial Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
44. Marine Ship Products	---	---	---	---	---	---	---	---	---	---	---	---	121
45. Office, Computing and Accounting Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
46. Service Industry Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
47. Electrical Industrial Equipment and Apparatus	---	---	---	---	---	---	---	---	---	---	---	---	121
48. Household Appliances	---	---	---	---	---	---	---	---	---	---	---	---	121
49. Electric Lighting and Wiring Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
50. Radio, Television and Other Audio Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
51. Electronic Components and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
52. Musical Instruments, Equipment and Supplies	---	---	---	---	---	---	---	---	---	---	---	---	121
53. Motorcycles and Scooters	---	---	---	---	---	---	---	---	---	---	---	---	121
54. Other Transportation Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
55. Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
56. Other Manufacturing Industries	---	---	---	---	---	---	---	---	---	---	---	---	121
57. Nonmetallic Mineral Products	---	---	---	---	---	---	---	---	---	---	---	---	121
58. Glass and Ceramic Products	---	---	---	---	---	---	---	---	---	---	---	---	121
59. Plastics and Synthetic Materials	---	---	---	---	---	---	---	---	---	---	---	---	121
60. Rubber and Miscellaneous Plastics Products	---	---	---	---	---	---	---	---	---	---	---	---	121
61. Leather Tanning and Industrial Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
62. Footwear and Other Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
63. Metallurgy, Electrometallurgy, Metal Products	---	---	---	---	---	---	---	---	---	---	---	---	121
64. General Industrial Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
65. Service Industry Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
66. Household Appliances	---	---	---	---	---	---	---	---	---	---	---	---	121
67. Electric Lighting and Wiring Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
68. Radio, Television and Other Audio Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
69. Electronic Components and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
70. Musical Instruments, Equipment and Supplies	---	---	---	---	---	---	---	---	---	---	---	---	121
71. Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
72. Other Manufacturing Industries	---	---	---	---	---	---	---	---	---	---	---	---	121
73. Nonmetallic Mineral Products	---	---	---	---	---	---	---	---	---	---	---	---	121
74. Glass and Ceramic Products	---	---	---	---	---	---	---	---	---	---	---	---	121
75. Plastics and Synthetic Materials	---	---	---	---	---	---	---	---	---	---	---	---	121
76. Rubber and Miscellaneous Plastics Products	---	---	---	---	---	---	---	---	---	---	---	---	121
77. Leather Tanning and Industrial Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
78. Footwear and Other Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
79. Metallurgy, Electrometallurgy, Metal Products	---	---	---	---	---	---	---	---	---	---	---	---	121
80. General Industrial Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
81. Service Industry Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
82. Household Appliances	---	---	---	---	---	---	---	---	---	---	---	---	121
83. Electric Lighting and Wiring Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
84. Radio, Television and Other Audio Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
85. Electronic Components and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
86. Musical Instruments, Equipment and Supplies	---	---	---	---	---	---	---	---	---	---	---	---	121
87. Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
88. Other Manufacturing Industries	---	---	---	---	---	---	---	---	---	---	---	---	121
89. Nonmetallic Mineral Products	---	---	---	---	---	---	---	---	---	---	---	---	121
90. Glass and Ceramic Products	---	---	---	---	---	---	---	---	---	---	---	---	121
91. Plastics and Synthetic Materials	---	---	---	---	---	---	---	---	---	---	---	---	121
92. Rubber and Miscellaneous Plastics Products	---	---	---	---	---	---	---	---	---	---	---	---	121
93. Leather Tanning and Industrial Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
94. Footwear and Other Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
95. Metallurgy, Electrometallurgy, Metal Products	---	---	---	---	---	---	---	---	---	---	---	---	121
96. General Industrial Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
97. Service Industry Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
98. Household Appliances	---	---	---	---	---	---	---	---	---	---	---	---	121
99. Electric Lighting and Wiring Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
100. Radio, Television and Other Audio Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
101. Electronic Components and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
102. Musical Instruments, Equipment and Supplies	---	---	---	---	---	---	---	---	---	---	---	---	121
103. Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
104. Other Manufacturing Industries	---	---	---	---	---	---	---	---	---	---	---	---	121
105. Nonmetallic Mineral Products	---	---	---	---	---	---	---	---	---	---	---	---	121
106. Glass and Ceramic Products	---	---	---	---	---	---	---	---	---	---	---	---	121
107. Plastics and Synthetic Materials	---	---	---	---	---	---	---	---	---	---	---	---	121
108. Rubber and Miscellaneous Plastics Products	---	---	---	---	---	---	---	---	---	---	---	---	121
109. Leather Tanning and Industrial Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
110. Footwear and Other Leather Products	---	---	---	---	---	---	---	---	---	---	---	---	121
111. Metallurgy, Electrometallurgy, Metal Products	---	---	---	---	---	---	---	---	---	---	---	---	121
112. General Industrial Machinery and Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
113. Service Industry Machines	---	---	---	---	---	---	---	---	---	---	---	---	121
114. Household Appliances	---	---	---	---	---	---	---	---	---	---	---	---	121
115. Electric Lighting and Wiring Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
116. Radio, Television and Other Audio Equipment	---	---	---	---	---	---	---	---	---	---	---	---	121
117. Electronic Components and Accessories	---	---	---	---	---	---	---	---	---	---	---	---	121
118. Musical Instruments, Equipment and Supplies	---	---	---	---	---	---	---	---	---	---	---	---	121
119. Aircraft	---	---	---	---	---	---	---	---	---	---	---	---	121
120. Other Manufacturing Industries	---	---	---	---	---	---	---	---	---	---	---	---	121
121. Nonmetallic Mineral Products	---	---	---	---	---	---	---	---	---	---	---	---	121
122. Glass and Ceramic Products	---	---	---	---	---	---	---	---	---	---	---	---	121
123. Plastics and Synthetic Materials	---</												

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Business Services	Business Type	Business Name	Address	Phone Number	Email Address	Website	Description	Status	Last Update	Comments	Actions	Performance Metrics										
												Revenue	Profit Margin	Customer Sat.	Employee Turnover	Inventory Turnover	Net Income	Gross Profit	Operating Expenses	Net Income Margin	EBITDA	EBITDA Margin
Accounting Services	Accounting	ABC Accounting Solutions	123 Main St, Suite 100	(555) 123-4567	info@abcaccounting.com	www.abcaccounting.com	Provides accounting services for small businesses, including bookkeeping, tax preparation, and financial reporting.	Active	2023-01-15	High satisfaction rate, strong growth in revenue.	View Details	\$150,000	10%	4.5	5%	10	\$15,000	\$50,000	\$100,000	10%	\$100,000	10%
Marketing Services	Marketing	Marketing Masters	456 Elm St, Suite 200	(555) 234-5678	marketing@marketingmasters.com	www.marketingmasters.com	Offering digital marketing, SEO, and social media management services.	Active	2023-01-15	Good performance, steady growth.	View Details	\$120,000	12%	4.3	6%	8	\$12,000	\$40,000	\$40,000	10%	\$80,000	10%
Consulting Services	Consulting	Strategic Solutions	789 Oak St, Suite 300	(555) 345-6789	strategic.solutions@strategicsolutions.com	www.strategicsolutions.com	Specializes in business consulting, strategy development, and operational efficiency.	Active	2023-01-15	Excellent client retention, high satisfaction.	View Details	\$180,000	15%	4.8	4%	5	\$18,000	\$60,000	\$60,000	10%	\$120,000	10%
Human Resources	Human Resources	HR Solutions	123 Main St, Suite 400	(555) 432-1234	hr.solutions@hrsolutions.com	www.hrsolutions.com	Provides HR consulting, recruitment, and employee benefits management.	Active	2023-01-15	Stable performance, consistent growth.	View Details	\$100,000	11%	4.2	7%	9	\$10,000	\$30,000	\$40,000	10%	\$60,000	10%
Information Technology	Information Technology	IT Solutions	456 Elm St, Suite 500	(555) 543-2345	it.solutions@itsolutions.com	www.itsolutions.com	Offering IT consulting, software implementation, and cybersecurity services.	Active	2023-01-15	Strong performance, high customer satisfaction.	View Details	\$160,000	13%	4.6	5%	7	\$16,000	\$50,000	\$60,000	10%	\$100,000	10%
Customer Support	Customer Support	Customer Support Solutions	789 Oak St, Suite 600	(555) 654-3456	customer.support@solutions.com	www.customer.support	Provides 24/7 customer support, including phone, email, and live chat.	Active	2023-01-15	Consistent performance, high satisfaction.	View Details	\$90,000	10%	4.4	6%	8	\$9,000	\$30,000	\$40,000	10%	\$60,000	10%
Manufacturing Services	Manufacturing	Manufacturing Solutions	123 Main St, Suite 700	(555) 765-4321	manufacturing.solutions@solutions.com	www.manufacturing.solutions	Specializes in manufacturing consulting, process optimization, and supply chain management.	Active	2023-01-15	Stable performance, consistent growth.	View Details	\$140,000	12%	4.3	7%	7	\$14,000	\$40,000	\$50,000	10%	\$80,000	10%
Logistics Services	Logistics	Logistics Solutions	456 Elm St, Suite 800	(555) 876-5432	logistics.solutions@solutions.com	www.logistics.solutions	Offering logistics consulting, warehousing, and distribution services.	Active	2023-01-15	Consistent performance, high satisfaction.	View Details	\$110,000	11%	4.2	8%	6	\$11,000	\$30,000	\$40,000	10%	\$70,000	10%
Supply Chain Management	Supply Chain Management	Supply Chain Solutions	789 Oak St, Suite 900	(555) 987-6543	supply.chain.solutions@solutions.com	www.supply.chain.solutions	Specializes in supply chain management, procurement, and inventory optimization.	Active	2023-01-15	Stable performance, consistent growth.	View Details	\$130,000	12%	4.4	6%	7	\$13,000	\$40,000	\$50,000	10%	\$80,000	10%
Quality Control Services	Quality Control	Quality Control Solutions	123 Main St, Suite 1000	(555) 123-4567	quality.control.solutions@solutions.com	www.quality.control.solutions	Provides quality control consulting, inspection services, and compliance management.	Active	2023-01-15	Consistent performance, high satisfaction.	View Details	\$100,000	11%	4.3	7%	6	\$10,000	\$30,000	\$40,000	10%	\$60,000	10%

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**Table V. DIRECT IMPORT REQUIREMENTS PER DOLLAR OF GROSS OUTPUT  
PROVIDENCE SMSA, 1963  
(Producers' Prices)**

DA Form 24-1 Replaces DA Form 24-1, 15 January 1968  
the Province, Major Islands, Metropolitan Area.

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## UNCLASSIFIED

Security Classification

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13. ABSTRACT This Research Paper presents the 1963 interindustry trans- actions data and coefficients for the Providence, Rhode Island, Standard Metropolitan Statistical Area in the same form as the 1958 national interindustry table prepared by the Office of Business Economics, U.S. Department of Commerce. The data are presented in five large (removable) tables: Interindustry Transactions, Direct Requirements Per Dollar of Gross Output, Total Requirements (Direct and Indirect) per Dollar of Delivery to Final Demand, Imports by Producing Sectors, and Direct Import Requirements Per Dollar of Gross Output. The text of the paper describes the tables, shows how they are used, and suggests feasible applications for these data both in Civil Defense planning and industrial economic planning.		

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